TITLE: SYSTEMS, FUNCTIONAL DATA, AND METHODS TO PACK N-DIMENSIONAL DATA
INVENTORS NAME: Michael Childs et al.
DOCKET NO.: 1528.005US1

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FIG. 1

TITLE: SYSTEMS, FUNCTIONAL DATA, AND METHODS TO PACK N–DIMENSIONAL DATA
INVENTORS NAME: Michael Childs et al.
DOCKET NO.: 1528.005US1

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FIG. 2A

FIG. 2B

TITLE: SYSTEMS, FUNCTIONAL DATA, AND METHODS TO PACK N-DIMENSIONAL DATA
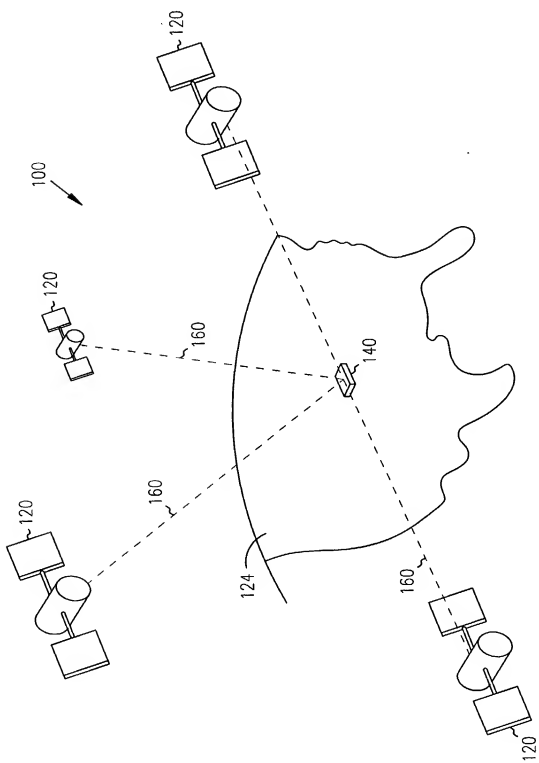INVENTORS NAME: Michael Childs et al.
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FIG. 3A

FIG. 3B

FIG. 3C

TITLE: SYSTEMS, FUNCTIONAL DATA, AND METHODS TO PACK N—DIMENSIONAL DATA
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FIG. 4A

TITLE: SYSTEMS, FUNCTIONAL DATA, AND METHODS TO PACK N-DIMENSIONAL DATA
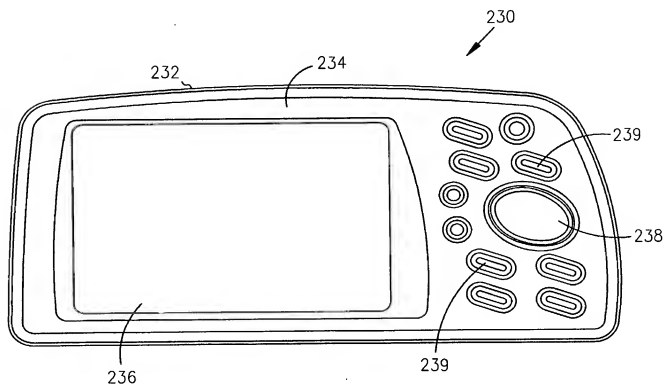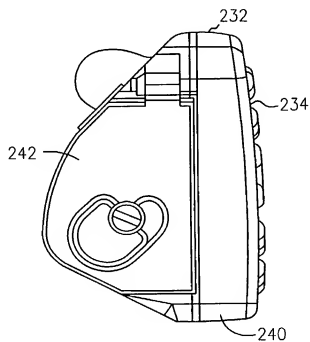INVENTORS NAME: Michael Childs et al.
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```
                                         ┌ ─ ─ ─ ─ ─ ┐  433
                                         │ MAP  DATA │
                                         │ CARTRIDGE │
                                         └ ─ ─ ─ ─ ─ ┘
                                              ·

   442              454            432              434
┌──────────┐   ┌──────────┐   ┌──────────┐   ┌──────────┐
│  MEMORY  │   │ I/O PORT │   │ CARTRIDGE│   │ SPEAKER/ │
│          │   │          │   │   BAY    │   │HEADPHONE │
└──────────┘   └──────────┘   └──────────┘   └──────────┘
     444    456           452              462

   446                   438            414
┌──────────┐  ┌──────────┐  ┌──────────┐  ┌──────────┐
│  POWER   │  │ PROCESSOR│  │   GPS    │  │   GPS    │
│  SOURCE  │  │          │  │ RECEIVER │  │ ANTENNA  │
└──────────┘  └──────────┘  └──────────┘  └──────────┘
        436           441  466

   451         448     426      458            416
┌──────────┐  ┌──────────┐  ┌──────────┐  ┌──────────┐
│ CONTROL  │  │ DISPLAY/ │  │ CELLULAR │  │ CELLULAR │
│ BUTTONS  │  │  INPUT   │  │TRANSCEIVER│ │ ANTENNA  │
└──────────┘  └──────────┘  └──────────┘  └──────────┘
   428
```

FIG. 4B

TITLE: SYSTEMS, FUNCTIONAL DATA, AND METHODS TO PACK N-DIMENSIONAL DATA
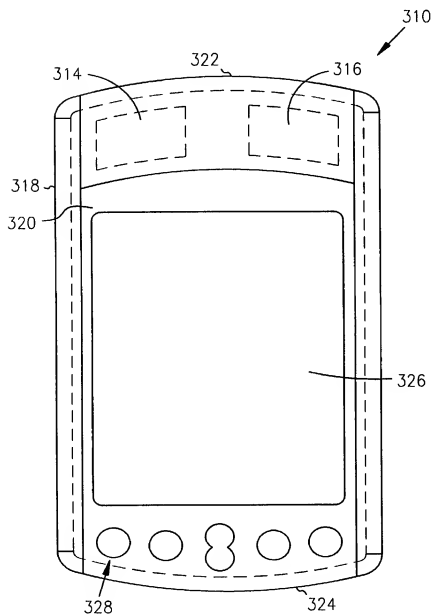INVENTORS NAME: Michael Childs et al.
DOCKET NO.: 1528.005US1

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NAVIGATION DEVICE — 516

526, 524

TRANSMITTER — 520

522 RECEIVER

COMMUNICATIONS CHANNEL — 518

SERVER — 502

TRANSMITTER — 508

510 RECEIVER

512 514

PROCESSOR — 504

506 MEMORY

MASS DATA STORAGE

FIG. 5

TITLE: SYSTEMS, FUNCTIONAL DATA, AND METHODS TO PACK N-DIMENSIONAL DATA
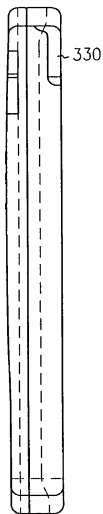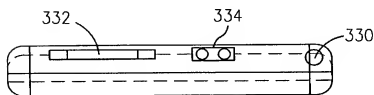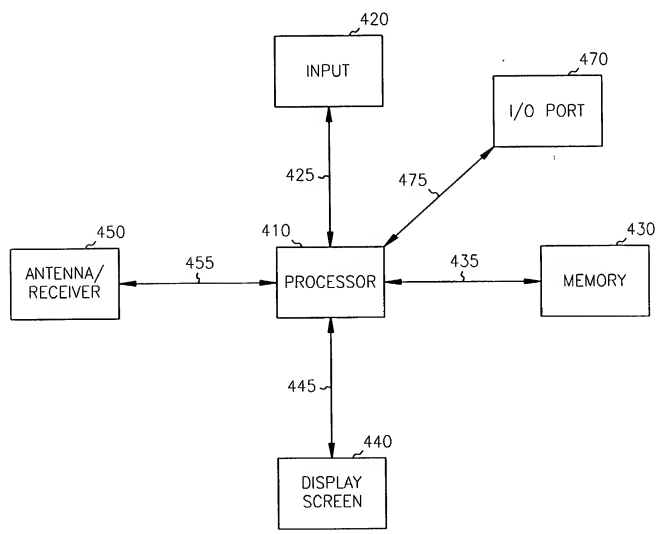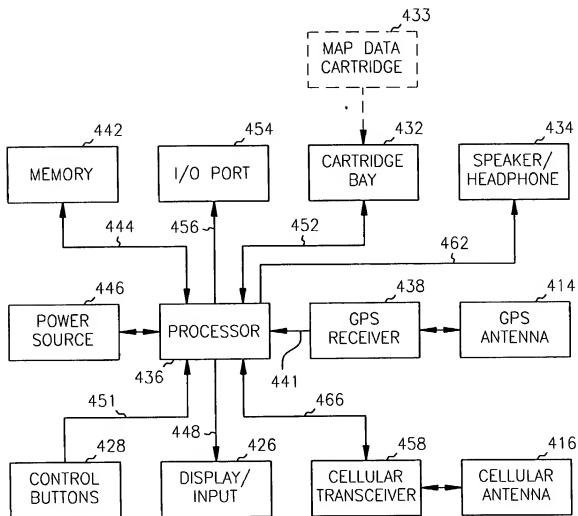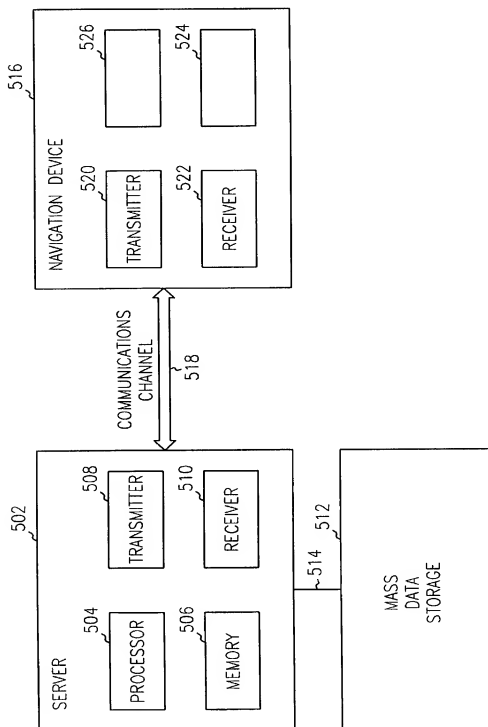INVENTORS NAME: Michael Childs et al.
DOCKET NO.: 1528.005US1

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600

```
+-------------------------------------------------+
|                    DISPLAY                      |
|                     610                         |
|          +--------------------------+           |
|          |      INTERFACE           |           |
|          |       DEVICE             |           |
|          |        612               |           |
|     +----+--------------------------+-------+    |
|     |   MEMORY        |      PROCESSOR       |   |
|     |    620          |        630           |   |
|     +-----------------+---------------------+    |
|     |        PACKED/UNPACKED               |     |
|     |        COORDINATE DATA               |     |
|     |             640                      |     |
|     +-----------+-----------------+--------+     |
|     | ACTIVATION|                 |        |     |
|     |   DATA    | N-DIMENSIONS    |        |     |
|     |   650     |     660         |DIRECTIONS|   |
|     +-----------+-----------------+  662   |     |
|     |      ATTRIBUTES             |        |     |
|     |        664                  |        |     |
|     +----------------------------+--------+      |
|     |       DELTA/OPTIMAL SIZES            |     |
|     |             670                      |     |
|     +------------------+------------------+      |
|     |  SPECIAL DATA    |   SIGN DATA       |     |
|     |     672          |     674           |     |
+-------------------------------------------------+
```

FIG. 6

TITLE.   SYSTEMS, FUNCTIONAL DATA, AND METHODS TO PACK N−DIMENSIONAL DATA
INVENTORS NAME: Michael Childs et al.
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700

710   720

| STORAGE | COM 1 | SERVER |

712

C
O   ~722
M

NAVIGATION DEVICE   730   2

| COMPRESSED/PACKED NAVIGATION DATA 732 | NAVIGATION DATA 734 |

PROCESSOR
736

DIMENSIONAL DATA
740

ACTIVATION DATA
742

MEMORY
738

FIG. 7

TITLE: SYSTEMS, FUNCTIONAL DATA, AND METHODS TO PACK N–DIMENSIONAL DATA
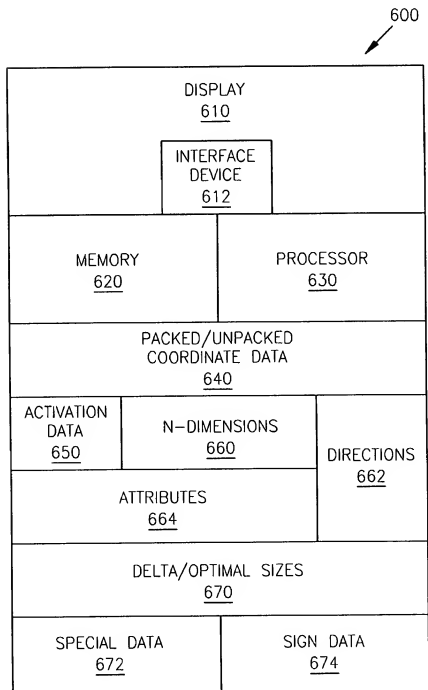INVENTORS NAME: Michael Childs et al.
DOCKET NO.: 1528.005US1

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AUDIO	NAVIGATION	VISUAL
801	DEVICE	802
	800	

810

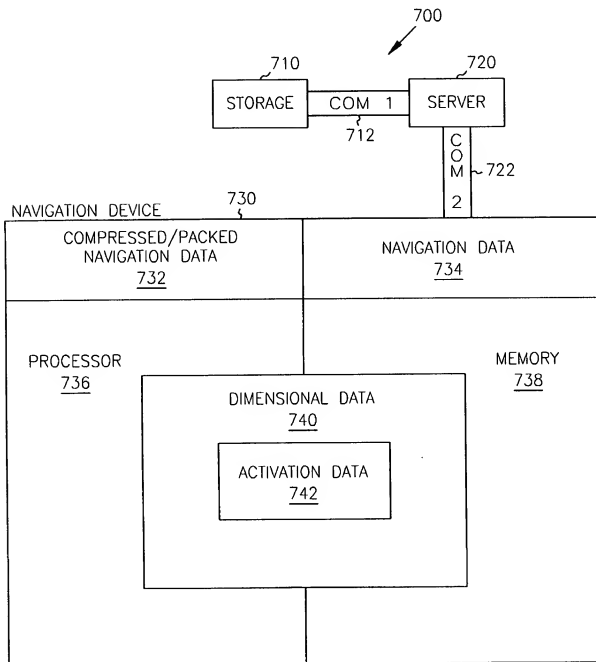| ATTRIBUTES 820 | ATTRIBUTE DATA 830 | PRES. POS. 840 | PLOTTING INSTRUCTION DATA 850 |
		ACTIVATION DATA 860	
		COMPRESSED/PACKED DATA 870	
	LONG 871	LAT 872	DEPTH 873	ALT 874	BOT. COND. 875	MARINE 876	AERO 877	LANDMARK 878

FIG. 8

TITLE: SYSTEMS, FUNCTIONAL DATA, AND METHODS TO PACK N-DIMENSIONAL DATA
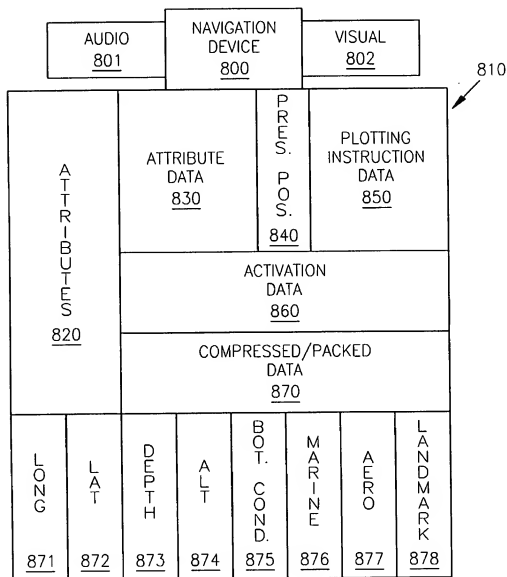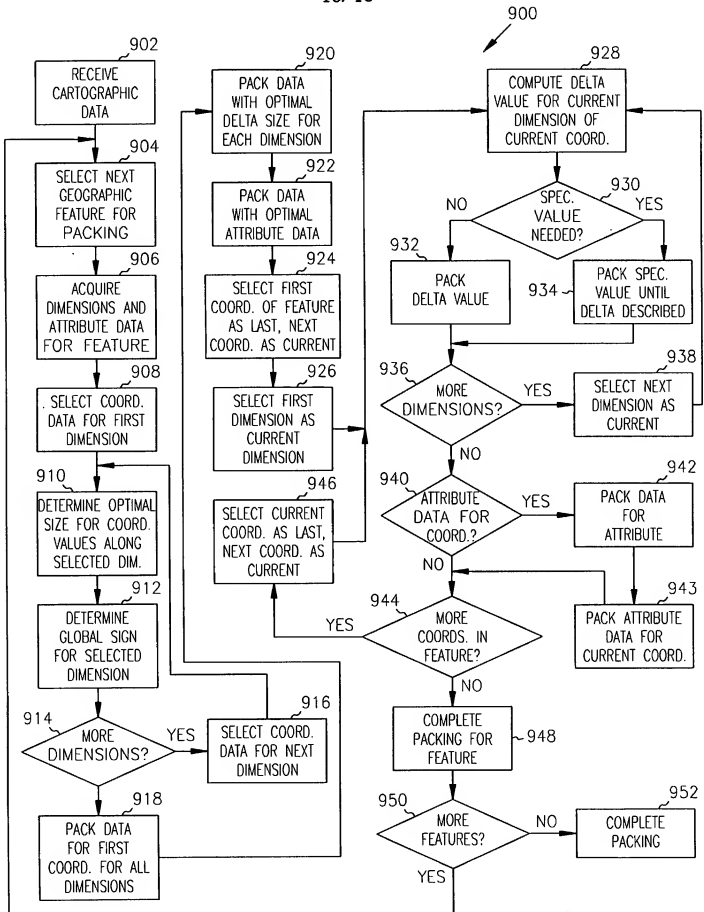INVENTORS NAME: Michael Childs et al.
DOCKET NO.: 1528.005US1

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900

902 RECEIVE CARTOGRAPHIC DATA

904 SELECT NEXT GEOGRAPHIC FEATURE FOR PACKING

906 ACQUIRE DIMENSIONS AND ATTRIBUTE DATA FOR FEATURE

908 SELECT COORD. DATA FOR FIRST DIMENSION

910 DETERMINE OPTIMAL SIZE FOR COORD. VALUES ALONG SELECTED DIM.

912 DETERMINE GLOBAL SIGN FOR SELECTED DIMENSION

914 MORE DIMENSIONS? — YES

916 SELECT COORD. DATA FOR NEXT DIMENSION

918 PACK DATA FOR FIRST COORD. FOR ALL DIMENSIONS

920 PACK DATA WITH OPTIMAL DELTA SIZE FOR EACH DIMENSION

922 PACK DATA WITH OPTIMAL ATTRIBUTE DATA

924 SELECT FIRST COORD. OF FEATURE AS LAST, NEXT COORD. AS CURRENT

926 SELECT FIRST DIMENSION AS CURRENT DIMENSION

946 SELECT CURRENT COORD. AS LAST, NEXT COORD. AS CURRENT

928 COMPUTE DELTA VALUE FOR CURRENT DIMENSION OF CURRENT COORD.

930 SPEC. VALUE NEEDED? NO / YES

932 PACK DELTA VALUE

934 PACK SPEC. VALUE UNTIL DELTA DESCRIBED

936 MORE DIMENSIONS? — YES

938 SELECT NEXT DIMENSION AS CURRENT

940 ATTRIBUTE DATA FOR COORD.? — YES

942 PACK DATA FOR ATTRIBUTE

943 PACK ATTRIBUTE DATA FOR CURRENT COORD.

944 MORE COORDS. IN FEATURE? — YES

948 COMPLETE PACKING FOR FEATURE

950 MORE FEATURES? — NO

952 COMPLETE PACKING

YES

FIG. 9